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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,049	04/14/2006	Martin Beck	29827/41950	8929
4743 7590 08/17/2010 MARSHALL, GERSTEIN & BORUN LLP 233 SOUTH WACKER DRIVE 6300 WILLIS TOWER CHICAGO, IL 60606-6357				
EXAMINER CHAPMAN, GINGER T				
ART UNIT		PAPER NUMBER		
3761				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/576,049

**Applicant(s)**

BECK ET AL.

**Examiner**

Ginger T. Chapman

**Art Unit**

3761

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 15, 17-21, 24 and 26-30 is/are pending in the application.
- 4a) Of the above claim(s) 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 15, 21, 24 and 26-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of the Claims***

1. Claims 1, 24 and 26 are amended, claim 30 is added, claims 1-2, 15, 17-21, 24 and 26-30 are pending in the application, claims 17-20 are withdrawn from consideration as being drawn to a nonelected invention, claims 1-2, 15, 21, 24 and 26-30 are examined on the merits.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-2, 15 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsubakimoto et al (US 4,286,082) in view of Somasundaran et al ("Encyclopedia of Surface and Colloidal Science, Volume 5, 2006, pp. 5324-5).

5. **With respect to claim 1**, Tsubakimoto discloses a hydrogel comprising superabsorbent polymer particles coated with 0.05% to 1%, by weight, of a hydrophobic compound (column 6,

lines 52-53), wherein the hydrophobic compound is a hydrophobic compound is a hydrophobicized silica (column 6, lines 44-45), and a multivalent cation (column 3, lines 46-47).

6. Tsubakimoto discloses the claimed invention except for expressly disclosing the hydrogel has a thickening capability. Hydrogels are known in the art for their ability to swell and to thicken when they imbibe fluids, since the hydrogel of Tsubakimoto appears to be formed of the substantially identical materials formed in the substantially identical manner, it will exhibit the claimed property of thickening.

7. Tsubakimoto discloses the claimed invention except for the hydrogel having a floatability. Tsubakimoto discloses that the hydrogel is coated with a hydrophobicized silica; hydrophobicized silica such as pyrogenic silica, i.e. fumed silica; such silicas are well known for their floatability property.

8. Somasundaran, at page 5324, first column, first paragraph, teaches that fumed, i.e. pyrogenic silica is hydrophobic and floats on water, whereas a hydrophilic silica sink and mixes in; Somasundaran (page 5324, column 2, paragraph 2) teaches that hydrophobic silica is used because of its properties as a thickening agent and as a suspension aid to thicken liquids; at page 5325, paragraph 1, hydrophobic silica is used to coat powders, and at paragraph 2, that hydrophobic, i.e. fumed alumina, when combined with silica, is typically added to powders by dry blending to coat the powder, i.e. powder coatings, to make adsorbents and coatings; the examiner notes that Tsubakimoto discloses blending the silica with the hydrogel, Somasundaran teaches that dry blending the silica and alumina forms a coating on the powder, thus the hydrogel of Tsubakimoto is coated with the silica / alumina as taught by Somasundaran.

9. Alumina in the form of aluminum sulfate is widely used as a flocculating agent in treatment of water, and thus in view of the teachings of Somasundaran, one of ordinary skill in the art at the time the invention was made, would be recognize that the hydrophobic silica coating of Tsubakimoto would provide the properties of floatability and thickening. One of ordinary skill in the art at the time the invention was made would be motivated to provide the hydrophobic silica or alumina to the hydrogel as taught by Somasundaran in the claimed ranges of 0.05 to 4% by weight, for their known properties of thickening and floatability according to their known functions with a reasonable expectation of success.

10. Tsubakimoto discloses the claimed invention except for wherein the hydrogel thickens from 40% to 90% of an aqueous solution or suspension starting from the surface of the solution or suspension and the hydrogel thickens the rest of the solution or suspension starting from the bottom of a container for the solution or suspension. The examiner notes that this limitation claims the invention in terms of what it does rather than what it is. See claim 30, paragraph 21 *infra*, that the hydrogel of Tsubakimoto will perform the claimed function because Tsubakimoto discloses a hydrophilic compound (column 15, Example 4, Table 2; lines 39-50, teaching hydrophilic silica), see also Somasundaran, at page 5324, column 1, paragraph 1, teaching that hydrophilic silica sinks and mixes in water. Therefore the examiner has a reasonable basis to conclude that the hydrogel of Tsubakimoto will have particles that are coated with the hydrophobic silica that float on the surface of the solution while the particles associated with the hydrophilic silica will sink and mix in the solution, thus disclosing the general conditions of claim 1.

11. Claiming an invention in terms of what it does rather than what the invention is can be a permissible technique that Applicant may use to define the invention if it cannot be described in any other way. However, where the claimed and prior art products or compositions are substantially identical in structure or composition a *prima facie* case of either anticipation or obviousness has been established. See MPEP § 2112.01 [R-3] I. With respect to composition claims, products of identical chemical composition cannot have mutually exclusive properties, therefore if the prior art teaches the identical chemical structure, then the properties Applicant discloses and / or claims are necessarily present. See MPEP § 2112.01 [R-3] II.

12. Tsubakimoto discloses the hydrogel coated with hydrophobic silica to absorb large amounts of bodily fluids such as blood and urine (column 7, lines 1-8) and coated with hydrophilic silica; Somasundaran teaches hydrophilic silica sinks and mixes in liquid while the use of hydrophobicized silica and alumina to coat powders to provide adsorbent, thickening and flocculent, i.e. floatability properties when used with fluids and liquids, therefore one of ordinary skill in the art at the time the invention was made would be motivated by the teachings of Tsubakimoto and Somasundaran to utilize the hydrogel, silicas and aluminas to perform the same functions as they are known to perform and thus would perform the claimed function with a reasonable expectation of success.

13. As per MPEP § 2144.09, rejections based on close structural similarity is founded on the expectation that compounds similar in structure will have similar properties. A *prima facie* case of obviousness may be made when chemical compounds have very close structural similarities and similar utilities. "An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the

expectation that compounds similar in structure will have similar properties.” *In re Payne*, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA 1979); *In re Papesch*, 315 F.2d 381, 137 USPQ 43 (CCPA 1963); *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1991).

14. The examiner notes that although the limitation of alumina is claimed as an optional component as it is claimed in the alternative “a hydrophobicized silica or a hydrophobicized mixture of silica and aluminas” Tsubakimoto discloses a hydrophobicized silica and thus meets the claim; the examiner includes the optional alumina in the detailed analysis as Somasundaran teaches the use of both silica and alumina as known in the art to be used together to provide the properties of thickening, floatability and absorbency, and thus meets the optional claim limitations.

15. **With respect to claim 2**, Tsubakimoto discloses the hydrogel having a blood absorbance of at least 10 g/g (column 15, Table 2).

16. **With respect to claim 15**, Tsubakimoto discloses a hygiene article comprising a hydrogel, said article selected from the group consisting of an incontinence article, a napkin (column 7, lines 8).

17. **With respect to claim 26**, Tsubakimoto discloses the hydrophilic compound is a silica, see claim 1, *supra*. With respect to the optional mixture of silica and aluminas, see claim 1, *supra* for detailed analysis of this limitation.

18. **With respect to claim 27**, Tsubakimoto discloses the hydrogel comprises a surfactant (column 2, line 13).

19. **With respect to claim 28**, Tsubakimoto discloses the claimed invention except for the multivalent cation is an aluminum ion. Tsubakimoto discloses multivalent cations (column 3,

lines 46-47), thus providing motivation for such. Somasundaran teaches aluminum ions as typically used with silica for providing the benefits of floatability and adsorbent properties, *supra* under claim 1, thus providing motivation for such, and teaches the multivalent cation is an aluminum ion teaching fumed alumina. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the cation as taught by Somasundaran for the hydrogel of Tsubakimoto for the adsorbent and floatability benefits taught by Somasundaran.

20. **With respect to claim 29**, Tsubakimoto discloses the surfactant is a sorbitan ester (column 2, line 26).

21. **With respect to claim 30**, Tsubakimoto discloses a hydrophilic compound (column 15, Example 4, Table 2; lines 39-50, teaching hydrophilic silica), see also Somasundaran, at page 5324, column 1, paragraph 1, teaching that hydrophilic silica sinks and mixes in water.

Therefore the examiner has a reasonable basis to conclude that the hydrogel of Tsubakimoto will have particles that are coated with the hydrophobic silica that float on the surface of the solution while the particles associated with the hydrophilic silica will sink and mix in the solution, thus disclosing the general conditions of claim 1.

22. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsubakimoto in view of Somasundaran and further in view of Lepore et al (US 6,592,768 B1).

23. **With respect to claim 21**, the combination of Tsubakimoto and Somasundaran disclose the claimed invention except for one or more of a biocidal material, an antimicrobial material, an antibacterial material, a perfume or scent material, a stabilizer, a dye, and a pH indicator.

Tsubakimoto provides motivation to use the hydrogel to absorb bodily fluid wastes. Lepore, at



column 1, lines 1-25, provides motivation for hydrogels used to absorb bodily and medical fluid wastes to comprise agents to minimize viral and bacterial pathogens to reduce risks to health from such biohazardous and infectious wastes. Lepore teaches hydrogels comprising biocidal material, an antimicrobial material, an antibacterial material (column 4, line 50 to column 8, line 50, Examples 1-3). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the hydrogel of Tsubakimoto and Somasundaran comprising the claimed materials as taught by Lepore since Lepore states, at column 2, lines 30-35 and lines 65-66, that the benefit of such materials in the hydrogel is that they kill pathogens thereby reducing the health risks of infection from human bodily wastes.

24. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsubakimoto in view of Somasundaran and further in view of Karapasha et al (US 5,306,487).

25. **With respect to claim 24**, Tsubakimoto discloses the claimed invention except for the hydrophobic compound is particles having an average diameter from 0.001 to 10  $\mu\text{m}$ .

Tsubakimoto discloses the particles having an average diameter of about 0.05  $\mu\text{m}$ , thus disclosing diameters within the claimed range and providing motivation for such (column 6, lines 40-41).

26. With respect to the upper end of the range of particle diameter greater than about 0.05  $\mu\text{m}$ , Karapasha teaches hydrogel comprising hydrophobicized silica and hydrophobicized mixtures of silicas and aluminas (column 3, lines 50-51) having average diameters from 1 to 15  $\mu\text{m}$  (column 3, line 59). Karapasha characterizes the hydrophobic particles as very small and dusty, one of ordinary skill in the art would recognize that dust tends to float on the surface of a liquid due to surface tension of liquid while larger particles tend to sink to the bottom, therefore one of ordinary skill in the art would recognize that particle size and density can be utilized to provide

floatability. Further, one of ordinary skill in the art would recognize that smaller particle have larger surface area relative to their internal volume and would thus have a faster rate of uptake of fluids, while larger particle sizes would have slower uptake due to smaller surface area for contact with fluid relative to their internal volume size, as is well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the particles of Tsubakimoto and Somasundaran in ranges of diameters as taught by Karapasha in order to adjust rates of fluid uptake for a particular end use.

27. With respect to the bottom end of the range of 0.001, when the claimed range and the prior art range are very similar, here the range taught in the prior art of 0.05 to 15  $\mu\text{m}$  overlaps the claimed range of 0.001 to 10  $\mu\text{m}$ , the range of the prior art establishes prima facie obviousness because one of ordinary skill in the art would have expected the similar ranges to have similar properties. See *In re Paterson*, 65 USPQ 2d 1379, 1382, citing *Titanium Metals Corp. v. Banner*, 227 USPQ 773, 779.

### ***Double Patenting***

28. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re*

*Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

29. Claims 1, 26 and 28 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 4-6 of copending Application No. 10/577,028. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims claim the substantially identical hydrogel in terms of functional properties desired while the copending claims claim the hydrogel in terms of chemical structure, thus the instant and the copending claims are drawn to and claim the substantially identical invention but claimed wherein the difference is in functional and structural language.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Response to Arguments***

30. Applicant's arguments with respect to claims 1-2, 15, 21, 24 and 26-30 have been considered but are moot in view of the new ground(s) of rejection.

31. With respect to Applicants' arguments that the claimed invention does not rely on density differences between the particles to provide floating and sinking properties, this argument is not persuasive because hydrophobic silica and alumina are known in the art to coat powders and impart floatability and flocculent properties to powders they coat; hydrophilic silica is known in the art to sink and mix in liquids, as detailed *supra* with respect to claims 1 and 30; therefore one of ordinary skill in the art at the time the invention was made would expect these components to perform their known functions with a reasonable expectation of success.

***Conclusion***

32. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ginger T. Chapman whose telephone number is (571)272-4934. The examiner can normally be reached on Monday through Friday 9:30 a.m. to 6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tatyana Zalukaeva can be reached on (571) 272-1115. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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